Discern - An Integrated Prospective Decision Support System

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We present a new integrated decision support tool, called Discern, for prospective case management within a comprehensive Healthcare Network Architecture (HNA). Discern is an event-driven, expert system tightly integrated into this architecture. It can perform a variety of actions including generating alerts, ordering tests, and entering results. Over 100 institutions use Discern to automate care processes. Discern was designed to meet the demanding requirements for effective decision support.

Introduction

Despite enormous investment in information technology, there is little evidence that hospital information systems (HIS) have improved healthcare productivity.
Decision support recognizes that intelligent management of patient information often requires more than simple data retrieval; this notion does not capture the concept of a dynamic care process, nor does it allow for active interventions. The HIS architecture at most institutions, however, is inadequate for the decision support tasks now demanded of them.

We started design on an integrated decision support tool, known as Discern, in 1988 and first deployed it in 1989.

Discern, is a near real time, prospective, rule-based expert system fully integrated into the HIS system. The HIS components are tightly intrarelated in an architecture called the Healthcare Network Architecture (HNA).

Applications

A small sample of actual applications is shown in table one.

Sample Discern Applications

Allergy checking prior to contrast procedure
Ordering manual white blood cell differentials
Generating alerts in elderly patients on certain drugs
Pharmacy notification of pregnant patients
Billing for respiratory care procedures
Canceling tests that do not meet certain criteria
Ordering CSF culture if CSF white cells are increased
Warnings for dietary statuses that interfere with medications
Interpretation of iron studies
Notifying radiology of procedure cancellation
Adjust heparin dosage based on PTT
Notifying nursing of radiology procedure preparation
Checking for coagulation studies prior to surgery

Table One

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0195-4210/94/$5.00